

REMARKS

I. STATUS OF THE CLAIMS

Claims 1, 5-16 and 27-32 are pending.

Claims 28-32 have been withdrawn from consideration.

Claims 1, 5-11 and 16 have been amended. Claims 2-4 and 17-26 have been cancelled without prejudice to or disclaimer of the subject matter recited therein.

Claim 1 is the independent claim.

II. THE REJECTION UNDER 35 U.S.C. §112

Claims 1, 2, 20 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claim 1 has been amended to correct the minor informality noted by the Examiner.

Therefore, Applicants respectfully request that the rejection of claim 1 under 35 U.S.C. § 112, second paragraph, be withdrawn.

Claims 2, 20 and 23 have been cancelled without prejudice or disclaimer of the subject matter recited therein. Accordingly, the rejection of claims 2, 20 and 23 is moot.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 has been amended to correct the minor informality noted by the Examiner.

Therefore, Applicants respectfully request that the rejection of claim 10 under 35 U.S.C. § 112, second paragraph, be withdrawn.

III. THE REJECTION UNDER 35 U.S.C. §103

Claims 1-9 and 12-27 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kristen (U.S. Patent No. 4,756,422) in view of Shepherd (U.S. Patent 5,129,813).

Applicants respectfully traverse this rejection for at least the following reasons.

Kristen is directed to an improved plastic bag for vacuum packaging such that air can be completely extracted from the bag, and Shepherd is directed to a vacuum bag molding in which air within the bag can be quickly and easily evacuated without the formation of air pockets and wrinkles.

The vacuum packaging film disclosed in amended claim 1 of the subject application is similar to Kristen and Shepherd, from the point of view in which protuberances are formed on the inner surface of the vacuum packaging film to form air passages.

However, independent claim 1 recites a vacuum packaging film comprising, a first group of protuberances, a second group of protuberances, a third group of protuberances and a fourth group of protuberances.

Accordingly, the vacuum packaging film of claim 1 provides improved vacuum performance thanks to an increase in total floor area of the protuberances without early collapse upon sealing using a vacuum apparatus, and a vacuum packaging bag using the vacuum packaging film. In particular, the vacuum packaging film of claim 1 is characterized in that four groups of protuberances are formed on the inner surface of the vacuum packaging film or on a first surface of the vacuum packaging film, and the protuberances have various arrangements, various sizes and irregular shapes, thereby forming various patterns and increasing the demand of vacuum packaging bags corresponding to needs of users. Further, in the vacuum packaging film according to an aspect of the present invention, the outer surface of the vacuum packaging film or a second surface of the vacuum packaging film is coated with transfer paper having a pattern identical to that formed on the inner surface of the vacuum packaging film, therefore making the pattern formed on the inner surface of the film delicate.

In contrast, in Kristen, only a regular pattern is provided by the protuberances formed on the inner surface of the vacuum packaging film, and thus, it is impossible to form various patterns and improve vacuum performance.

In addition, Shepherd discloses three-dimensional patterns, in which the three-dimensional patterns function not to realize various patterns but to ensure no need for air trap or wrinkles in a vacuum packaging bag after completion of a vacuum process, and the

deformations in the vacuum bag gradually collapse, until at last the channels disappear and the fully collapsed vacuum bag lies flat against the surface of the enclosed surface and in intimate contact therewith.

Kristen is characterized in that a plurality of raised protuberances have uniform thickness and are formed in a generally regular and waffle-like pattern on the inner surface of at least one of said first and second panels to project outwardly therefrom towards the inner surface of the other panel to define a plurality of intercommunicating channels entirely around and between said protuberances. However, Kristen differs from claim 1 in the following aspects.

In Kristen, the protuberances having uniform thickness and formed in a generally regular and waffle-like pattern are applied only to waffle-like patterns and cannot be used to realize various patterns.

In Kristen, in the case where the regular protuberances are formed on the inner surface of the vacuum film, vacuum performance determined by heights, shapes, arrangements, structures and total floor of the protuberances is definite, and thus a phenomenon in which the upper sheet and lower sheet adhere to each other (referred to as 'early collapse') may occur.

Shepherd discloses a vacuum bag comprising a non-porous material having impressed therein a three-dimensional pattern which defines a plurality of interconnected channels, said vacuum bag being capable of collapsing such that upon completion of evacuation of said vacuum bag said three-dimensional pattern relaxes into a locally flat two-dimensional configuration. However, Shepherd differs from claim 1 in the following aspects.

In Shepherd, the air passages are formed between the three-dimensional pattern and the release sheet, instead of being formed by the upper sheet and lower sheet superimposed together as in the subject application. Further, upon completion of the vacuum process, the three-dimensional pattern is completely relaxed under atmospheric pressure and assumes a locally flat form, such that the bag is in intimate contact with the surfaces of optional release sheet without the formation of air pockets or wrinkles.

Additionally, in Shepherd, the three-dimensional pattern relaxes into a locally flat two-dimensional configuration upon completion of evacuation of the vacuum bag, the two-dimensional configuration is formed on the inner surface of the vacuum film after the completion of the vacuum process, undesirably resulting in indefinite shapes of patterns and the impossibility of forming various patterns.

Furthermore, in Shepherd, the vacuum performance determined by the heights, shapes, arrangements, structures and total floor of the protuberances is decreased as the vacuum process is conducted.

In addition, in Shepherd, a vacuum application port is sealed using a vacuum apparatus, which is different from the subject application where the open part between the upper sheet and the lower sheet of the vacuum packaging film is sealed.

As noted above, amended claim 1 discloses that four groups of protuberances are formed on the first surface of the vacuum packaging film, the protuberances having various arrangements and sizes and being provided in irregular shapes, thereby exhibiting the improved function and effect as follows.

With the vacuum packaging film having four groups of protuberances, the total surface area of the protuberances becomes wider and an output flux of air increases. Thus, an internal chamber of the vacuum packaging bag can be easily made to the state of vacuum.

The various patterns can be exactly formed by various sizes and various arrangement directions of the protuberances, therefore increasing the productivity of end products corresponding to the needs of the users.

Additionally, the outer surface of the vacuum packaging film is coated with transfer paper having a pattern identical to that formed on the inner surface thereof, thereby exactly realizing desired patterns.

Accordingly, Applicants respectfully assert that the rejection of claim 1 under 35 U.S.C. §103(a) should be withdrawn because neither Kristen nor Shephard, whether taken singly or combined, teach or suggest each feature of independent claim 1.

Furthermore, Applicants respectfully assert that dependent claims 5-9, 12-16 and 27 are allowable at least because of their dependence from claim 1, and because they include additional features which are not taught or suggested by the prior art. Therefore, it is respectfully submitted that claims 5-9, 12-16 and 27 also distinguish over the prior art.

Claims 2-4 and 17-26 have been cancelled without prejudice or disclaimer of the subject matter recited therein. Accordingly, the rejection of claims 2-4 and 17-26 is moot.

Claims 10 and 11 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kristen in view of Shepherd and further in view of Leonard Jr. (U.S. Patent 4,343,848).

Applicants respectfully traverse this rejection for at least the following reasons.

Claims 10 and 11 depend from claim 1 and as noted above, neither Kristen nor Shepherd, whether taken singly or combined teach or suggest the features recited in amended claim 1.

Leonard Jr. discloses a thermoplastic film characterized in that one surface of the film is provided with a plurality of rows of protuberances having the shape of pyramids with square bases which extend perpendicular to both the longitudinal and the transverse axes of the film (abstract). Accordingly, Leonard, Jr. fails to cure the deficiencies of Kristen and Shepherd and thus fail to teach the features recited in amended independent claim 1.

Accordingly, Applicants respectfully assert that the rejection of claim 1 under 35 U.S.C. §103(a) should be withdrawn because neither Kristen nor Shepherd nor Leonard Jr., whether taken singly or combined teach or suggest each feature of independent claim 1, upon which claims 10 and 11 depend.

IV. CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

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If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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